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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/625,904

07/24/2003

Ritsuko Kawasaki

0756-7181

1203

31780

7590

02/10/2006

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EXAMINER

SEFER, AHMED N

ART UNIT

PAPER NUMBER

2826

DATE MAILED: 02/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/625,904	Applicant(s) KAWASAKI ET AL	
	Examiner A. Sefer	Art Unit 2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 November 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 11-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 11-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendment filed November 28, 2005 has been entered and new claims 15-22 have been added.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 12 recites the limitation "the projection." There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Yamazaki et al. ("Yamazaki") US PG-Pub 2003/0092213.

Yamazaki discloses in fig. 8C a semiconductor device comprising: a light-transmitting substrate 136; a base film (film above region 134/135) having a projection, the film being formed over one surface of the light-transmitting substrate; and an island-like semiconductor layer having a crystal structure covering the projection and extending over a pair of edges of the projection, a gate insulating film over the island-like semiconductor layer; and a gate electrode over the gate insulating film.

Regarding claim 15, Yamazaki discloses (par. 0018) a silicon oxide, silicon nitride or silicon nitride oxide base film.

6. Claims 1 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Suzawa et al. ("Suzawa") USPN 5,728,259.

Suzawa discloses in fig. 5 a semiconductor device comprising: a light-transmitting substrate 501; a base film 502 having a projection, the film being formed over one surface of the light-transmitting substrate; and an island-like semiconductor layer 506 having a crystal structure covering the projection and extending over a pair of edges of the projection, a gate insulating film 508 over the island-like semiconductor layer; and a gate electrode 509 over the gate insulating film.

Regarding claim 15, Suzawa discloses (col. 7, lines 39-44) a silicon oxide.

7. Claims 2 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Yamazaki.

Yamazaki discloses in fig. 8C a semiconductor device comprising: a light-transmitting substrate 136 and a thin film transistor over the light-transmitting substrate, wherein a base film (film above region 134/135) having a projection, the film being formed over one surface of the light-transmitting substrate; and an island-like semiconductor layer comprising a channel

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formation region 152/155, at least a part of the channel formation region of the thin film transistor being provided over the projection and the island-like semiconductor layer covers the projection and extends over a pair of edges of the projection; and a gate insulating film over an island-like layer; and a gate electrode over the gate insulating film.

Regarding claim 16, Yamazaki discloses (par. 0018) a silicon oxide, silicon nitride or silicon nitride oxide base film.

8. Claims 2 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Suzawa.

Suzawa discloses in fig. 5 a semiconductor device comprising: a light-transmitting substrate 501 and a thin film transistor over the light-transmitting substrate, wherein a base film 502 having a projection, the film being formed over one surface of the light-transmitting substrate; and an island-like semiconductor layer 506 comprising a channel formation region 511, at least a part of the channel formation region of the thin film transistor being provided over the projection and the island-like semiconductor layer covers the projection and extends over a pair of edges of the projection; and a gate insulating film 508 over an island-like layer; and a gate electrode 509 over the gate insulating film.

Regarding claim 16, Suzawa discloses (col. 7, lines 39-44) a silicon oxide.

9. Claims 11 and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Yamazaki.

Yamazaki discloses in fig. 8C a semiconductor device comprising a light-transmitting substrate 136, a base film having a region of a first thickness (film above region 134/135) and a region of a second thickness (not above 134/135) smaller than the first thickness, the film being formed over one surface of the light-transmitting substrate, and the region of the first thickness having an area smaller than the region of the second thickness; and an island-like semiconductor

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layer having a crystal structure over the base film, the layer being formed over the region of the first thickness and the region of the second thickness; and a gate insulating film over an island-like layer; and a gate electrode over the gate insulating film.

Regarding the recitation that the island-like semiconductor layer is capable of being irradiated with light, it refers to an operational limitation and any such limitation must distinguish from the prior art in terms of structure rather than function, *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997); See also *In re Swinehart*, 439 F.2d 210, 212-13, 169 USPQ 226, 228-29 (CCPA 1971; see also *In re Danly*, 263, F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959).

Regarding claim 17, Yamazaki discloses (par. 0018) a silicon oxide, silicon nitride or silicon nitride oxide base film.

10. Claims 12 and 18, as understood, are rejected under 35 U.S.C. 102(e) as being anticipated by Yamazaki.

Yamazaki discloses in fig. 8C a semiconductor device comprising: a light-transmitting substrate 136 and a thin film transistor over the light-transmitting substrate, wherein a base film having a region of a first thickness (above 134/135) and a region of a second thickness (not above 134/135) smaller than the first thickness being provided over one surface of the light-transmitting substrate, the region of the first thickness has an area smaller than the region of the second thickness, at least a pad of a channel formation region 152/155 of the thin film transistor being provided over the region of the first thickness, source and drain regions 153/154 of the thin film transistor are provided over **the projection** and cover a pair of edges of **the projection**,

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and the island-like semiconductor; and a gate insulating film over an island-like layer; and a gate electrode over the gate insulating film.

Regarding the recitation that the island-like semiconductor layer is capable of being irradiated with light, it refers to an operational limitation and any such limitation must distinguish from the prior art in terms of structure rather than function, *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997); See also *In re Swinehart*, 439 F.2d 210, 212-13, 169 USPQ 226, 228-29 (CCPA 1971; see also *In re Danly*, 263, F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959).

Regarding claim 18, Yamazaki discloses (par. 0018) a silicon oxide, silicon nitride or silicon nitride oxide base film.

11. Claims 12 and 18, as understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Suzawa.

Suzawa discloses in fig. 5 a semiconductor device comprising: a light-transmitting substrate 501 and a thin film transistor over the light-transmitting substrate, wherein a base film having a region of a first thickness (mid-portion) and a region of a second thickness (periphery regions) smaller than the first thickness being provided over one surface of the light-transmitting substrate, the region of the first thickness has an area smaller than the region of the second thickness, at least a pad of a channel formation region 511 of the thin film transistor being provided over the region of the first thickness, source and drain regions 510/511 of the thin film transistor are provided over **the projection** and cover a pair of edges of **the projection**, and the island-like semiconductor; and a gate insulating film over an island-like layer; and a gate electrode over the gate insulating film.

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Regarding claim 18, Suzawa discloses (col. 7, lines 39-44) a silicon oxide.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 3, 4, 14, 19, 20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzawa.

Suzawa discloses the device structure as recited in the claim, but does not specifically disclose a semiconductor device being applied to an electronic instrument listed in the claim.

However, Examiner takes Official Notice that an electronic instrument selected from the group consisting of a personal computer, a video camera or a digital camera is conventional and well known. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have used any of the various electronic instruments since Examiner takes Official Notice that due to their low power consumption, displays have become a necessary and indispensable structural element of an electronic instrument.

Regarding claims 3, 4 and 14, it would have been obvious to meet the recited thickness range, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233. Furthermore, the specification contains no disclosure of either the critical nature of the claimed arrangement or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen dimensions or upon another variable

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recited in a claim, the applicant must show that the chosen dimensions are critical. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

14. Claims 11, 13, 17 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzawa in view of Chen ("Chen") USPN 5,965,916.

Suzawa discloses in fig. 5 a semiconductor device comprising a light-transmitting substrate 1, a base film having a region of a first thickness (mid-portion) and a region of a second thickness (periphery regions) smaller than the first thickness, the film being formed over one surface of the light-transmitting substrate, and the region of the first thickness having an area smaller than the region of the second thickness; and an island-like semiconductor layer 506 having a crystal structure over the base film, the layer being formed over the region of the first thickness; and a gate insulating film 508 over an island-like layer; and a gate electrode 509 over the gate insulating film, but lacks anticipation of an island-like semiconductor layer over the region of the second thickness.

Chen discloses in fig. 1 a semiconductor device comprising a light-transmitting substrate 1; a base film 3 having a thin and thick regions; and an island-like semiconductor layer 33 having a crystal structure over the base film, the layer being formed over the region of the first thickness and second thickness; and a gate insulating film 34 over an island-like layer; and a gate electrode 37 over the gate insulating film.

Therefore, it would have been obvious to one skilled in the art at the time the invention was to modify Suzawa's device by covering the thin and thick portions of the base film since that would increase total capacitance of the LCD as taught by Chen.

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Regarding claim 13, it would have been obvious to meet the recited thickness range, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233. Furthermore, the specification contains no disclosure of either the critical nature of the claimed arrangement or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen dimensions or upon another variable recited in a claim, the applicant must show that the chosen dimensions are critical. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Regarding claim 17, Suzawa discloses (col. 7, lines 39-44) a silicon oxide.

Regarding claim 21, Examiner takes Official Notice that an electronic instrument selected from the group consisting of a personal computer; a video camera or a digital camera is conventional and well known. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have used any of the various electronic instruments since Examiner takes Official Notice that due to their low power consumption, displays have become a necessary and indispensable structural element of an electronic instrument.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Sefer whose telephone number is (571) 272-1921.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272-1915.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ANS

February 5, 2006



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